WHAT IS CLAIMED IS:

1. A method comprising the steps of:

receiving a first quantization value for a first macroblock;

determining a second quantization value for the first macroblock based on the first quantization value and a first expected amount of video data in a video buffer.

2. The method of claim 1, further comprising the step of modifying the first macroblock based on the second quantization value.

3. The method of claim 1, wherein the first quantization value is received from a source of the first macroblock.

4. The method of claim 1, wherein an address location of a video buffer represents the first expected amount of data in the video buffer.

5. The method of claim 1, wherein a buffer delay value indicating when a frame is to be processed represents the first expected amount of data in the video buffer.

6. The method of claim 5, wherein the buffer delay value is based on a number of frames stored in a buffer location of the video buffer.

7. The method of claim 1, wherein the first expected amount of data is determined based on a modeling of the video buffer.

8. The method of claim 7, wherein the modeling of the video buffer includes determining a fullness of a video buffer based on a difference between a input rate and a output rate.

9. The method of claim 7, wherein modeling of the video buffer includes using a VBV buffer model.

10. The method of claim 1, wherein the step of determining further includes determining the second quantization value based on a first ratio of a input bit rate to a output bit rate.

11. The method of claim 10, wherein the step of determining further includes determining the second quantization value based on a second ratio of the first ratio to a source bit count.

12. The method of claim 10, wherein the step of determining further includes determining the second quantization value based on a product value of a X scaling value and a Y scaling value, wherein the product value is raised to a power of Z where Z is less than one.

13. The method of claim 12, wherein the X scaling value includes a horizontal frame size value and the Y scaling value includes a vertical frame size value.

14. The method of claim 13, wherein Z is .75 +/- 0.1.

15. The method of claim 1, wherein the second quantization value includes a ratio value of the first quantization value to a quantization ratio.

16. The method of claim 15, wherein the quantization ratio is based on the first expected amount of data.

17. The method of claim 16, wherein:

the quantization ratio includes a first constant value when the first expected amount of data is greater than a first indicator;

the quantization ratio includes a second constant value when the first expected amount of data is less than the first indicator and greater than a second indicator; and

the quantization ratio is determined from a non-linear function when the first expected amount of data is less than the second indicator.

18. The method of claim 17, wherein the first indicator is a buffer fullness value of 75% +/- 1% of a maximum buffer fullness.

19. The method of claim 17, wherein the second indicator is a buffer fullness value of 20% +/- 1% of a maximum buffer fullness.

20. The method of claim 17, wherein the non-linear function includes an equation:

$$R = Q * X^{(Y-W)/Z}$$

where R is the quantization ratio, Q is an initial quantization ratio, X is a first constant value, Y is a second constant, W is a value representing the amount of data, and Z is a third constant value.

21. A method comprising the steps of:

modifying a quantization value for a first macroblock by a first constant value when an amount of data stored in a buffer is greater than a first indicator;

modifying the quantization value for the first macroblock by a second constant value when the amount of data stored in the buffer is greater than a second indicator and less than the first indicator; and

modifying the quantization value for the first macroblock by a non-linear value when the amount of data stored in the buffer is less than the second indicator.

22. A method comprising the steps of:

determining a first quantization value associated with a first macroblock;

modifying the first macroblock using a second quantization value, wherein the second quantization value is based on a ratio of a first quantization ratio to the first quantization value, and where the first quantization ratio is based on a first expected characteristic of a video buffer.

23. The method of claim 22, wherein the step of determining the first quantization value includes receiving the first quantization value from a source of the first macroblock.

24. The method of claim 22, wherein the first expected characteristic of the video buffer includes a fullness of the video buffer.

25. The method of claim 22, wherein a buffer delay value indicating when a frame is to be processed represents the first expected characteristic of the video buffer.

26. The method of claim 25, wherein the buffer delay value is based on a number of frames stored in a buffer location.

27. The method of claim 22, wherein the first expected characteristic is determined based on a modeling of the video buffer.

28. The method of claim 27, wherein the modeling of the video buffer includes determining a fullness of the video buffer based on a difference between a input rate and a output rate.

29. The method of claim 27, wherein the modeling of the video buffer includes using a VBV buffer model.

30. The method of claim 22, wherein the quantization ratio is based on a product value of a X scaling value and a Y scaling value, wherein the product value is raised to a power of Z where Z is less than one.

31. The method of claim 30, wherein the X scaling value includes a horizontal frame scaling value and the Y scaling value includes a vertical frame scaling value.

32. The method of claim 30, wherein Z is .75 +/- 0.1.

33. The method of claim 30, wherein:

the quantization ratio includes a first constant value when the first expected characteristic is greater than a first indicator;

the quantization ratio includes a second constant value when the first expected characteristic is less than the first indicator and greater than a second buffer indicator; and

the quantization ratio is determined from a non-linear function when the first expected characteristic is less than the second indicator.

34. The method of claim 33, wherein the first indicator is a buffer fullness value of 75% +/- 1% of a maximum buffer fullness.

35. The method of claim 33, wherein the second indicator is a buffer fullness value of 20% +/- 1% of a maximum buffer fullness.

36. The method of claim 33, wherein the non-linear function includes an equation:

$$R = Q * X^{(Y-W)/Z}$$

where R is the quantization ratio, Q is an initial quantization ratio, X is a first constant value, Y is a second constant, W is a value representing the amount of data, and Z is a third constant value.

37. A system for rate control comprising:

a monitoring module having an output, said monitoring module to determine a first expected characteristic of a target decoder and to determine a source quantization value for a received source macroblock;and

a rate control module having a first input coupled to the output of said monitoring module to receive the first expected characteristic and the source quantization valueand an output, said rate control module to determine a transcoding quantization value for the source macroblock based on the first expected characteristic and the source quantization value.

38. The system of claim 37, further including a quantizer having an input coupled the output to said rate control module, said quantizer to quantize the source macroblock using the transcoding quantization value.

39. The system of claim 37, further including a ratio generator having an output, said ratio generator to determine a quantization ratio based on the first expected characteristic of the target decoder.

40. The system of claim 39, said rate control module further having an input coupled to the output of said ratio generator to receive the quantization ratio, the rate control module to determine the transcoding quantization value based on a ratio value of the source quantization value to the quantization ratio.

41. The system of claim 37, wherein said rate control module determines the transcoding quantization value based on a non-linear function applied to the source quantization value.

42. The system of claim 37, wherein the first expected characteristic includes a fullness of a buffer associated with the target decoder.

43. The system of Claim 42, wherein the fullness of the buffer is obtained from the target decoder.

44. The system of Claim 42, wherein the fullness of the buffer is determined from a model of the buffer.

45. The system of Claim 42, wherein the model includes a VBV buffer model.

46. The system of claim 42, wherein said monitoring module uses an address location of the buffer to determine the fullness of the buffer.

47. The system of claim 37, wherein the first expected characteristic includes a delay value associated with a buffer.

48. The method of claim 47, wherein the delay value is based on a number of frames stored in an the buffer.

49. The system of claim 37, wherein said monitoring module models the target decoder to determine the first expected characteristic.

50. The system of claim 49, wherein said monitoring module models a measurement of a difference between a input rate and a output rate.

51. A computer readable medium, said computer readable medium including instructions to manipulate a processor to:

receive a first quantization value for a first macroblock;

determine a second quantization value for the first macroblock based on the first quantization value and a first expected amount of video data in a video buffer.

52. The computer readable medium of claim 51, wherein said instructions further include instructions to manipulate said processor to modify the first macroblock based on the second quantization value.

53. The computer readable medium of claim 51, wherein the first quantization value is received from a source of the first macroblock.

54. The computer readable medium of claim 51, wherein an address location of a video buffer represents the first expected amount of data in the video buffer.

55. The computer readable medium of claim 51, wherein a buffer delay value indicating when a frame is to be processed represents the first expected amount of data in the video buffer.

56. The computer readable medium of claim 55, wherein the buffer delay value is based on a number of frames stored in a buffer location of the video buffer.

57. The computer readable medium of claim 51, wherein the first expected amount of data is determined based on a modeling of the video buffer.

58. The computer readable medium of claim 57, wherein the modeling of the video buffer includes using a VBV buffer model.

59. The computer readable medium of claim 57, wherein the modeling of the video buffer includes determining a fullness of a video buffer based on a difference between a input rate and a output rate.

60. The computer readable medium of claim 51, wherein said instructions to manipulate said processor to determine further include instructions to manipulate said processor to determine the second quantization value based on a first ratio of a input bit rate to a output bit rate.

61. The computer readable medium of claim 60, wherein said instructions to manipulate said processor to determine further include instructions to manipulate said processor to determine the second quantization value based on a second ratio of the first ratio to a source bit count.

62. The computer readable medium of claim 60, wherein said instructions to manipulate said processor to determine further include instructions to manipulate said processor to determine the second quantization value based on a product value of a X scaling value and a Y scaling value, wherein the product value is raised to a power of Z where Z is less than one.

63. The computer readable medium of claim 62, wherein the X scaling value includes a horizontal frame size value and the Y scaling value includes a vertical frame size value.

64. The computer readable medium of claim 63, wherein Z is .75 +/- 0.1.

65. The computer readable medium of claim 51, wherein the second quantization value includes a ratio value of the first quantization value to a quantization ratio.

66. The computer readable medium of claim 65, wherein the quantization ratio is based on the first expected amount of data.

67. The computer readable medium of claim 66, wherein:
the quantization ratio includes a first constant value when the first expected amount of data is greater than a first indicator;
the quantization ratio includes a second constant value when the first expected amount of data is less than the first indicator and greater than a second indicator; and
the quantization ratio is determined from a non-linear function when the first expected amount of data is less than the second indicator.

68. The computer readable medium of claim 67, wherein the first indicator is a buffer fullness value of 75% +/- 1% of a maximum buffer fullness.

69. The computer readable medium of claim 67, wherein the second indicator is a buffer fullness value of 20% +/- 1% of a maximum buffer fullness.

70. The computer readable medium of claim 67, wherein the non-linear function includes an equation:

$$R = Q * X^{(Y-W)/Z}$$

where R is the quantization ratio, Q is an initial quantization ratio, X is a first constant value, Y is a second constant, W is a value representing the amount of data, and Z is a third constant value.